**ITWorks – MongoDB Database Document**

**(for Client)**

**Client Company Name:** **Shopping World**

**Author : Andre Alexandrov**

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**For more information**

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| **Client Company Contact:** |  |
| Name: Joe Black  Email: Joe.Black@ShoppingWorld.com  Tel.: 0800361455423 |  |

**Revision History:**

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| 1.0 | 02/07/2023 | Andre Alexandrov | *First draft.* |
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# Introduction

This section specifies the background information about the client company *(ShoppingWorld)* MongoDB document.

It documents the design and features implemented with the MongoDB deployed are covered for this document.

MongoDB Atlas Database deployed:

* Version: 6.0.6
* Region: AWS / Sydney (ap-southeast-2)
* Cluster name: ShoppingWorld0
* Database name: shoppingCartDB

# Database Document Objectives

This section describes the database document objectives such as the description of the database setup details with the local database and the cloud services, as documentation tools, contacts, the design, and sign off

* Define the database setup details. This item describes the availability of the database as local database and also from cloud database service through the cloud service provider.
* Communicate to all responsible parties related to different procedures. This item describes who are the contacts for the client company. Describe how frequent the ITWork staff communicates with the client representative.
* Define design and implementation deliverables (create collections, insert data, … REST API)
* Setup users and authentications.
* Design of indexes to optimize the retrieval
* Design of data partitioning /load balancing
* Communicate to all responsible parties to provide the system resources required, approvals and sign off for the design

# Scope

* This section describes the overall purpose of the proposed database. This document will list the features (e.g. the storing data, making queries, updating business transactions) of the database that meets the client business requirements. (Approx. 80 words)

1. Storing and retrieval of transactions and record keeping, stock management, making data queries easy
2. Cloud storage usage and an API
3. The creation of roles and users to manage and access the database

# Database Services and Connections

* This lists more details of the database service offered by MongoDB Atlas with the following information:

Document the cluster configuration:

* Cloud provider & Region: AWS / Sydney (ap-southeast-2)
* Memory storage: 512.0 MB
* MongoDB version: 6.0.6
* Network Access (ip addresses to connect): 143.92.12.000
* Automated backup (active or inactive): inactive
* List the connection methods (The connection string) \*\*Note: no need to include user name and password.
* Connection with MongoDB shell:

mongosh "mongodb+srv://shoppingworld0.ld75ke0.mongodb.net/" --apiVersion 1 --username

* Connect with Application:

mongodb+srv://shoppingworld0.ld75ke0.mongodb.net/?retryWrites=true&w=majority

* Connect with MongoDB Compass:

mongodb+srv://@shoppingworld0.ld75ke0.mongodb.net/

# Database Schema & Collections

* This section describes why MongoDB may meet the business data processing requirements of the client. (Approx. 30 words)

MongoDB is well-suited for meeting business data processing requirements due to its efficient indexing capabilities, which enhance query performance, and its ability to seamlessly integrate with cloud environments (Atlas DB), offering scalability and availability.

* Discuss the benefit of flexibility of schemeless may also meet the business transaction process. (Approx. 30 words)

The flexibility of a schemeless database allows businesses to easily adapt and modify their transaction processes without the need for rigid data structures, enabling greater agility and scalability.

* Include the database schema diagram designed for the client.

A screenshot of a computer

Description automatically generated with medium confidence

# Performance Tuning using Indexes.

* Describe how indexing may help the performance with the client business. May include a list of indexes created. (Approx. 30 words)

Indexing in a database, such as MongoDB, improves performance for the client's business by creating data structures that enable faster retrieval and sorting of data, resulting in quicker query execution and enhanced overall system efficiency.

* Describe how sharding may help the performance with the client business. May include the partitioning/sharding distribution here. (Approx. 30 words)

Sharding in MongoDB can enhance the performance of the client's business by distributing data across multiple servers, allowing for horizontal scalability and increased throughput, reducing the load on individual servers and improving overall system performance.

# Users and authentications

This section describes the user access and the authenticaltion to the database.

* List 4 common database roles

1. Database Administrator (DBA)
2. Database Developer
3. Data Analyst
4. Data Architect

* List of users created and their permissions

User Admin:

dbAdminAnyDatabase, readWriteAnyDatabase, userAdminAnyDatabase, clusterAdmin

JimBrown: read

# Scaling (horizontal and vertical scaling)

* Describe the horizontal scaling using partitioning and sharding features of MongoDB. May include example of the sharding option completed in Part 3 Task 4.

Horizontal scaling in MongoDB is achieved through partitioning and sharding. Partitioning involves dividing data into smaller subsets based on a specified key, while sharding distributes these partitions across multiple servers, allowing for increased data storage capacity and improved performance.

* Describe the vertical scaling (license upgrade) available to MongoDB Atlas.
* Upgrade options: list one update options appropriate to the client
* **Name: M10**
* Price /hr. : **0.10**
* RAM (GB) :2
* Storage (GB) :10
* CPU (no.) :2vCPU

# REST API for applications

* Describes the purpose of using REST API. (Approx. 30 words)

The purpose of using a REST API is to provide a standardized and uniform interface for communication between different software systems, allowing them to interact and exchange data efficiently over the web.

* Include the name of the APIs already set up in Part 4. Include the URI port no and the paths for accessing the APIs.

Post – http://127.0.0.1:3000/api/post

getAll - http://127.0.0.1:3000/api/getAll

getOne - http://127.0.0.1:3000/api/getOne/{id}

update - http://127.0.0.1:3000/api/update/{id}

delete - http://127.0.0.1:3000/api/delete/{id}

# Approvals/Sign Off

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| --- | --- | --- |
| **Name and signature** | **Title** | **Date** |
|  |  |  |
| 1. **Joe Black** | Database Administrator | 04/07/2023 |
|  |  |  |
| 1. **Andre Alexandrov** | DBA Consultant | 04/07/2023 |